

USP1 SERIES RESILIENT WEDGE GATE VALVES



1. GENERAL CLASSIFICATION

- 1.1 U.S. Pipe Valve & Hydrant Resilient Wedge Gate Valves comply with ANSI/AWWA C515 where applicable.
- 1.2 U.S. Pipe Valve & Hydrant Resilient Wedge Gate Valves 14" thru 24" are approved by Factory Mutual Research Corporation (FM) and are listed by Underwriters Laboratories, Inc. (UL). Valves with actuators are not listed.
- 1.3 U.S. Pipe Valve & Hydrant Resilient Wedge Gate Valves are tested and certified to ANSI/NSF Standard 61 & 372.
- 1.4 U.S. Pipe Valve & Hydrant Resilient Wedge Gate Valves are suitable for potable water applications.
- 1.5 U.S. Pipe Valve & Hydrant Resilient Wedge Gate Valves are iron body, fully encapsulated resilient wedge type.
- 1.6 U.S. Pipe Valve & Hydrant Resilient Wedge Gate Valves are manufactured in the U.S.A. at an ISO9001 Certified factory.

2. SIZE RANGE, WORKING TEMPERATURE & WORKING PRESSURE

- 2.1 **Sizes:** 14" – 54"
- 2.2 **Working Temperature:** 33° F minimum to 125° F maximum.
- 2.3 **Working Pressure**
 - 2.3.1 14" thru 54" valves - 250 psi for AWWA.
 - 2.3.2 14" thru 16" valves - 250 psi for UL/FM.
 - 2.3.3 18" thru 24" valves - 175 psi for UL/FM.

3. TYPE OF VALVE

- 3.1 U.S. Pipe Valve & Hydrant Resilient Wedge Gate Valves are non-rising stem or post indicator type (PIV – 14" thru 30").
- 3.2 U.S. Pipe Valve & Hydrant NRS Resilient Wedge Gate Valves are offered with O-ring stem seals.
- 3.3 U.S. Pipe Valve & Hydrant Resilient Wedge Gate Valves are offered to either open left or open right.
- 3.4 U.S. Pipe Valve & Hydrant Resilient Wedge Gate Valves with a 2" square wrench nut complying with AWWA C515. Optional hand wheels are available.
- 3.5 U.S. Pipe Valve & Hydrant Resilient Wedge Gate Valves of the non-rising stem type and post indicator type are offered with the following end connections:
 - 3.5.1 Flanged Ends with flange drilling complying to ANSI B16.1 Class 125 (ISO PN10/PN16 drilling optional).
 - 3.5.2 Standard Mechanical Joint Ends (14" thru 48") for cast iron pipe or ductile iron pipe with end dimensions complying with ANSI/AWWA C111/A21.11.
 - 3.5.3 Slip-On Joint Ends* (14" thru 16") complete with U.S. Pipe Valve & Hydrant Slip-On Gasket, complying with ANSI/AWWA C111/A21.11. Fits plain end of classes 150, 200 and 250 cast iron; ductile iron and classes 150 and 200 cast iron O.D. PVC**.

3.6 U.S.

**Design and dimensions of the joint are manufactured under license of U.S. Pipe and Foundry Company.
 **When using DI O.D. PVC pipe, the gaskets supplied by Mueller Co. must be used with this valve connection.*

Pipe Valve &

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Hydrant Resilient Wedge Tapping valves (14" thru 48") have an inlet flange complying with ANSI B16.1 Class 125, and are offered with a Standard Mechanical Joint outlet end with dimensions complying with ANSI/AWWA C111/A2.11.

4. MATERIAL SPECIFICATIONS

- 4.1 **Cap screw** - Steel, SAE J429 Grade 2 Zinc Plated.
- 4.2 **Wrench nut** – Cast Iron, ASTM A-126, Class B.
- 4.3 **Handwheel** – Cast Iron, ASTM A-126, Class B.
- 4.4 **Stuffing box**
 - 4.4.1 14" thru 24" sizes – Ductile Iron, ASTM A-536.
 - 4.4.2 30" thru 54" sizes - Hot Rolled Steel, ASTM A36.
- 4.5 **Stem O-rings**
 - 4.5.1 14" thru 16" Nitrile, ASTM 2000.
 - 4.5.2 18" thru 54" EPDM ASTM 2000
- 4.6 **Anti-friction washers** – Acetal Copolymer.
- 4.7 **Stem**
 - 4.7.1 14" thru 16" sizes – Manganese Bronze, CDA Alloy C67600.
 - 4.7.2 18" thru 54" sizes – Bronze, ASTM B-584, Alloy C86400.
- 4.8 **Bonnet** - Ductile Iron, ASTM A-536.
- 4.9 **Bonnet seal**
 - 4.9.1 4" thru 16" sizes – O-ring, Nitrile, ASTM D2000.
 - 4.9.2 18" thru 54" sizes - O-ring, EPDM, ASTM D2000.
- 4.10 **Stuffing box bolts & nuts** - Steel - Bolts: SAE J429, Grade 2; Nuts: ASTM A-563 Grade A – Plated to ASTM F1941 Class Fe/Zn 12c.
- 4.11 **Bonnet bolts & nuts** - Steel - Bolts: SAE J429 Grade 2; Nuts: ASTM A-563 Grade A – Plated to ASTM F1941 Class Fe/Zn 12c.
- 4.12 **Disc nut** – Bronze, ASTM B62 CDA 83600.
- 4.13 **Guide cap bearings** – Acetal Copolymer.
- 4.14 **Disc** - Ductile Iron, ASTM A-536.
- 4.15 **Disc encapsulated**
 - 4.15.1 14" thru 16" sizes – SBR ASTM D2000.
 - 4.15.2 18" thru 54" sizes – EPDM, ASTM D2000.
- 4.16 **Body** – Ductile Iron, ASTM A-536.
- 4.17 **Coating** – Inside and outside of valve fully coated - coating complies with ANSI/AWWA C550 and is certified to ANSI/NSF Standard 61 & 372.
 - 4.17.1 14" thru 36" sizes - Mueller PRO-GARD[®] Fusion Bonded Epoxy.
 - 4.17.2 42" thru 54" sizes - Mueller HP Epoxy.

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5. DESIGN FEATURES

- 5.1 **14" thru 48" sizes** - fully unobstructed, oversized (except 16" which is same size) flow way. The sealing mechanism is withdrawn from the flow way in a full open position. No pockets in bottom of flow way to trap sediment or debris. The flow way will permit passage of full-sized shell cutters (except 16" which requires undersized cutter). 54" valves will use a 48" full-sized shell cutter.
- 5.2 **Bronze Disc Nut** -all valves.
- 5.3 **Anti-Friction Washers on non-rising stem valves** – Are located above and below the thrust collar portion of the stem to reduce friction and provide more effective conversion of operating torques into seating loads.
- 5.4 **Stem for non-rising stem valves, with O-ring Seals** – One O-ring is located below the thrust collar of the stem and two are located above the thrust collar. The O-rings and thrust collar are factory lubricated. The two primary O-rings seal the thrust collar area from outside contaminants and water, and retain an ample amount of lubricant on the thrust collar and anti-friction washers to reduce operating torque and wear.
- 5.5 **Stem** – The threads on the bronze stem are Acme form threads for strength and efficiency. The stem thrust collar is made integral with the stem -- and is formed by a heat upset operation for valves 14" thru 16" in size; cast in place for 18" and larger valves.
- 5.6 **Upper Stem O-ring Replacement** – The two O-rings above the thrust collar of all U.S. Pipe Valve & Hydrant Resilient Wedge Gate Valves can be replaced with the valve in the fully open position, under pressure, with no leakage.
- 5.7 **Corrosion Resistant** – 14" thru 36" sizes - all inside and outside cast iron surfaces are coated with Mueller® PRO-GARD® Epoxy Coating, 10 mils nominal. Mueller® PRO-GARD® Epoxy Coating is non-toxic and imparts no taste to water. 42" thru 54" sizes - all inside and outside cast iron surfaces coated with Mueller HP Epoxy Coating. Both coatings comply with ANSI/AWWA C550 and valves are certified to ANSI/NSF Standard 61 & 372.

6. OPTIONAL FEATURES

- 6.1 U.S. Pipe Valve & Hydrant Resilient Wedge Gate Valves can be furnished with the following optional designs or features:
 - 6.1.1 **Gearing** – Bevel and Spur gearing available on valves. Valves 30" and larger gearing is required. Bevel geared valves are for horizontal installations; spur geared for vertical. Geared valves provide an additional bearing to support the extreme end of the stem.
 - 6.1.2 **Bypass valve** – Valves 18" or larger. The bypass valves are non-rising stem U.S. Pipe Valve & Hydrant Resilient Wedge Valves. The bypass size and location comply with Section 24 of AWWA C500. For 16" valves, bypasses are available on flanged ends, mechanical joint ends and flange x mechanical joint ends only.
 - 6.1.3 **Position indicator.**
 - 6.1.4 **Bolts and nuts** – Stainless Steel, Type 316.
 - 6.1.5 **Stem** – Silicon bronze - Valves 14" thru 16" ASTM B98 C66100; 18" and larger ASTM B763 C99400 or C99500. 304 Stainless Steel or 316 Stainless Steel.
 - 6.1.6 **Disc encapsulation** – 14" thru 16" sizes – EPDM ASTM D2000.

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7. TEST PRESSURE

7.1 The pressure test on each U.S. Pipe Valve & Hydrant Resilient Wedge Gate Valve meets the requirements of AWWA Standard C515 for Resilient Seated Valves.

7.1.1 Each U.S. Pipe Valve & Hydrant Resilient Wedge Gate Valve is subjected to two pressure tests. The seat test is at the working pressure of AWWA valves and 1-1/2 times working pressure of UL Listed valves. Shell tests are at two times the working pressure.

7.1.2 Pressure tests at the working pressure shall show NO leakage past the seat from either side of the wedge or at the flange joints. Pressure tests at twice the working pressure shall show NO leakage through the metal or flange joints.

7.1.3 Test pressures are as follows: 14" thru 16" – 375 psi seat test, 500 psi shell test; 18" thru 54" – 275 psi seat test, 500 psi shell test.



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